

BAY TO BAY LINK FEASIBILITY STUDY

Dredge the Inland Channel

Assumptions:

- 1. Average ground elevation is +10 ft MLLW.
- 2. Dredging depth to -7 feet MLLW (17 feet).

This channel opens to a large basin in the north part of the Alternative for a marina and other boat slips. The channel would be excavated from the land and in the dry, then filled with water after fully constructed. Long hauling distances and possible saltwater content in the soils are calculated into the costs.

Construct Seawall

Because of the limited area, a vertical seawall is assumed for the Alternative. A revetted slope would require much more width than is available or assumed at this time. The vertical seawall will be much more expensive to construct, but will utilize the space much better.

Maintenance Dredging in Proposed Channels

It is assumed that minor dredging may need to occur near the connection to San Diego Bay from a build-up of sediments. It is assumed that 20% of the initial approach channel may fill in each year (as a maximum volume).

Dredge in San Diego River

It is assumed that the average elevation within the San Diego River area to be dredged is about +5 feet MLLW (0 near mouth and maybe around +10 near flood gate area). It is assumed that the channel would need to be maintained to an adequate depth and would fill in rather quickly.

Construct Gate at Mission Bay

A gate would need to be constructed through the center jetty between the San Diego River and Mission Bay. Currently, there is a weir that exists to control storm flows from the river. The proposed gate would be similar to the levee gate, but not necessarily as large or complex.

Drege through Levee

The last segment of channel that would extend from the northern-most channel, through the levee to the San Diego River. It is assumed that the ground elevation is approximately +10 feet MLLW and approximately +18 feet MLLW at the levee. This northernmost leg from the large basin towards the levee would also require about 1300 lf of seawall.

Maintenance Dredging in North Channel.

This includes the direct link through the San Diego River to Mission Bay, therefore maintenance dredging would also need to be conducted along the northern reach.

Construct Flood Gate at San Diego River

The flood gate is assumed to be a moveable gate that slides along a track separating the San Diego River and the new channels. The gate would probably be a steel gate with a support and driving mechanism. The dimensions would be about 75 feet long and 26 feet high (from +18 to -8 ft MLLW).

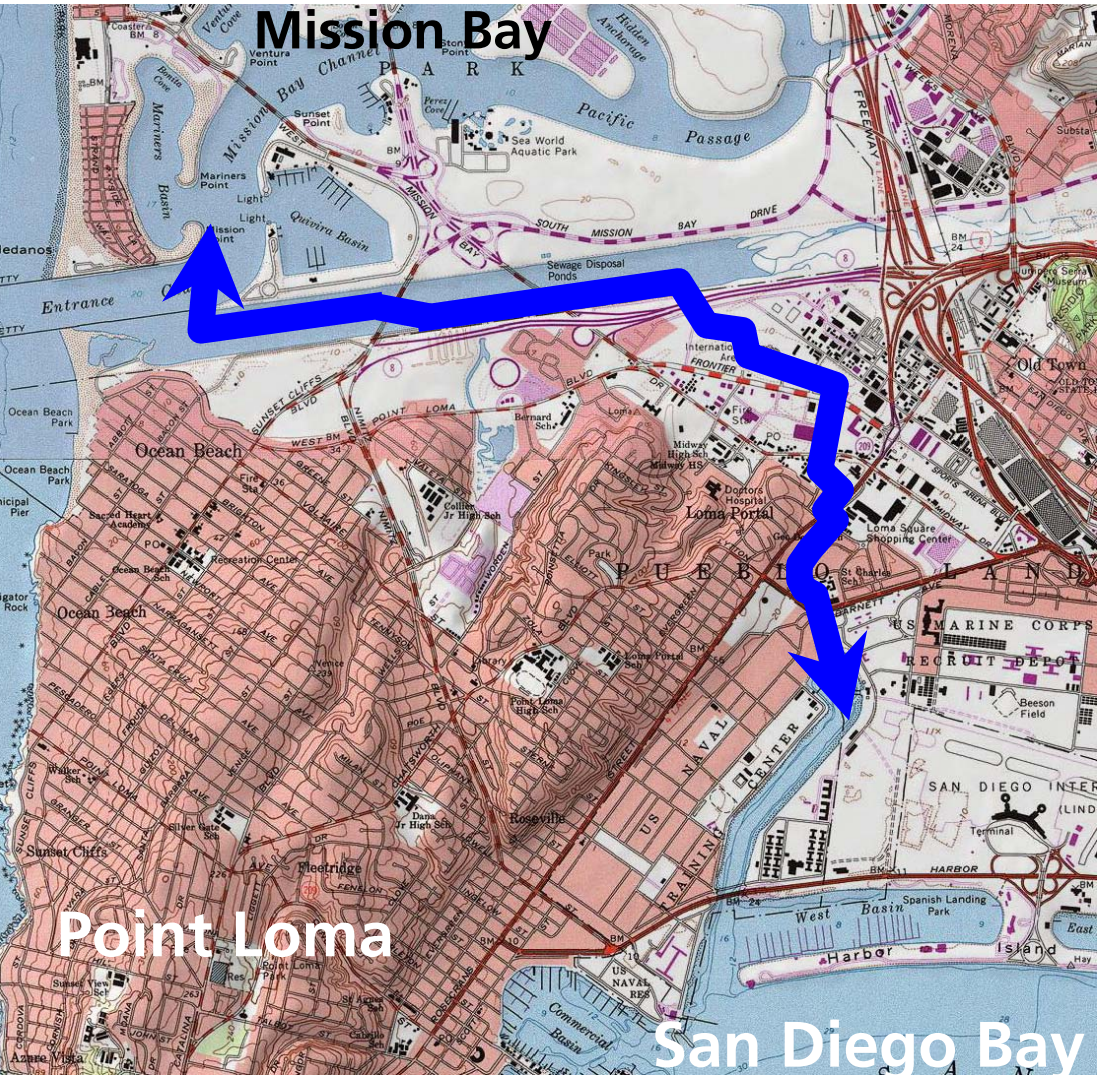
Water Circulation (Pumps)

Pumps may or may not be required for the complete Bay-to-Bay channel. Without modelling, this is difficult to answer. In order to assume the worse case, we assume that several (5-10) pumps may be needed to provide adequate circulation and water quality.

Wet Utilities

Some existing utilities will need to be replaced in order to attain the proposed alternative configuration. These include sewer mains, storm drains, and water mains. With rerouting of the sewer line, new lift stations may be needed. It is estimated that approximately 3,800 linear feet of 96- inch sewer main will need to be demolished and replaced with 4,400 linear feet in order to reroute around the navigable channel.

Waterfront Engineering



Proposed route of the Navigable Channel Alternative. It cuts under Interstate near the existing pump station #8 (below) and follows the levee and maintenance road west to under existing bridges. Finally, it cuts north through the western levee and into Mission Bay.



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WATER QUALITY

This alternative would result in the greatest potential water quality impacts of the alternatives reviewed because of both the extent of grading/excavation and the fact that it would directly connect to both San Diego Bay and the San Diego River. Although construction-related hazardous materials employed are assumed to be similar under any of the alternatives, they are assumed to be present over a longer duration with this alternative due to the extent of required construction activity. Urban contaminants actually generated by this alternative may be somewhat less with regard to landscaping than the other alternatives, but would involve potential for boating contaminants that would not occur with the other alternatives. The connection to sensitive water bodies could result in the channel being a conduit for sediment, construction-related hazardous materials and urban contaminants (both those associated with the project and those generated by surrounding activities) that would be difficult to filter.

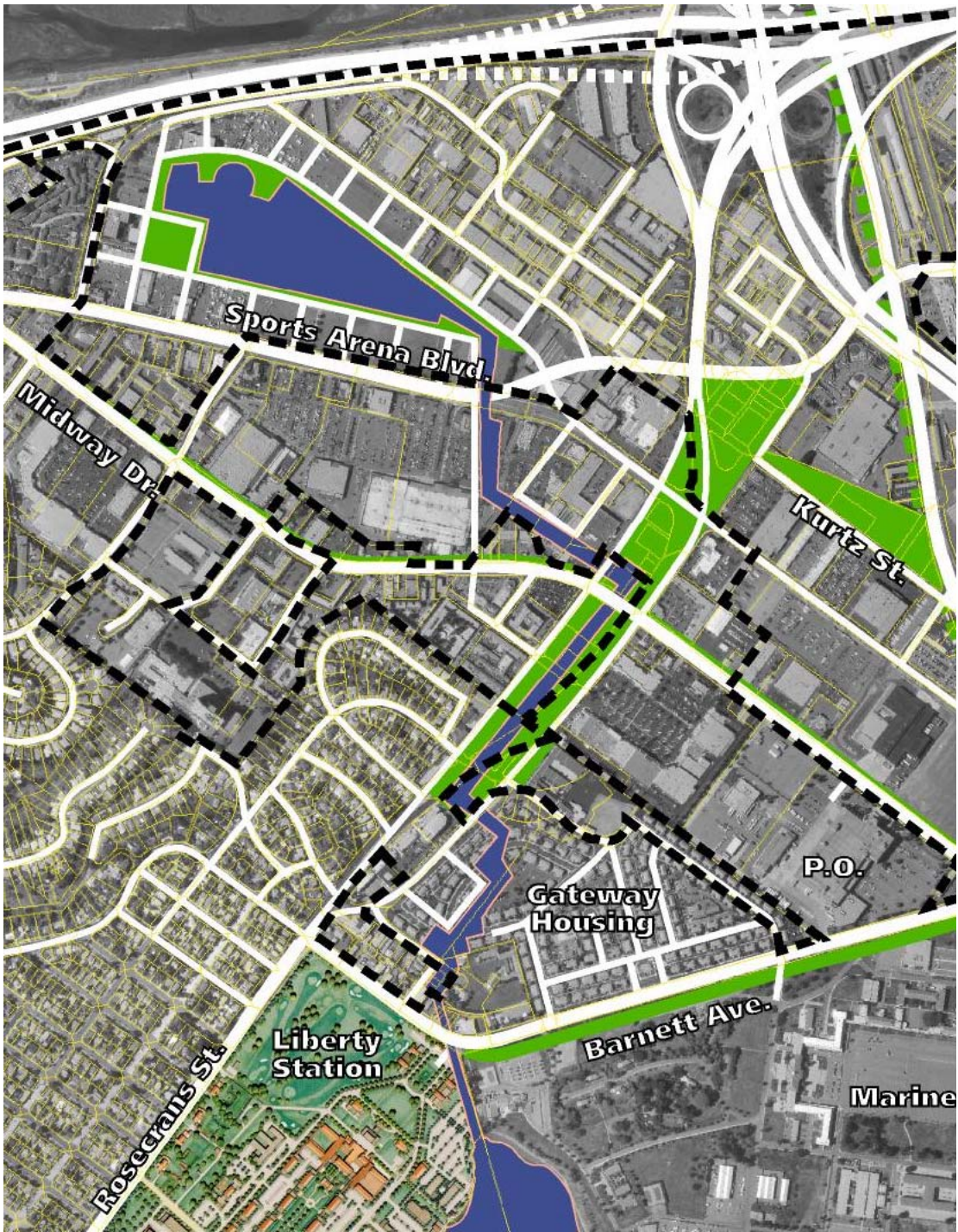
The depth required for the tidal channel would increase the potential for dewatering activities to be required in association with excavation. The potential for this to occur in areas subject to existing groundwater contamination results in concerns associated both with construction and with long-term seepage into the channel (and transport to adjoining water bodies).



As noted in the discussion above, a major concern (and one associated only with this alternative) is associated with the channel's connectivity to, and mixing of flows between, the San Diego River, Mission Bay and San Diego Bay. The connection between San Diego River and San Diego Bay would be direct; although there is a jetty between the San Diego River channel and Mission Bay, it is possible that there would be some flow between the two related to tidal action. As described in the general discussion above, each of these water bodies is included on the list of impaired water bodies due to existing pollution. Each, however, has distinct pollution issues not currently shared by the other water bodies (e.g., phosphorus and chlordanes in the San Diego River, sediment toxicity and dissolved copper in the San Diego Bay). The mixing of flows, therefore, could exacerbate the existing water quality issues in these areas, and further degrade their ability to support the designated beneficial uses related to recreation and wildlife habitat.

Given the relatively small amount of the San Diego River that lies downstream from the proposed connection point, it is possible that water quality impacts there could be relatively minimal; it also is possible, however, that flows could create a backwater that would affect some upstream areas of the river as well. Also, differences in net tidal flow between the two bays would have to be controlled to avoid scouring and associated turbidity. Determination of the direction, amount and rate of flow, as well as how far it would extend into each of the water bodies, would require a hydrologic analysis. This in turn would allow a more detailed assessment of the potential water quality impacts associated with this alternative. In the absence of this detailed assessment, water quality impacts are considered a potentially severe constraint to implementation of this alternative.

Water Quality



If a channel were connected only to San Diego Bay and not broken through to the San Diego River, impacts from mixing of flows between the two water bodies would be avoided, thereby substantially reducing anticipated impacts. The water in the channel would, however, be contaminated by flows from the Bay, and there would remain some potential for transfer of polluted groundwater to the Bay. These potential concerns are much less severe than those associated with a connection of the two waterbodies.

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BIOLOGICAL RESOURCES

Construction of the channel linking San Diego Bay to the San Diego River could result in significant short- and long-term impacts to biological resources.

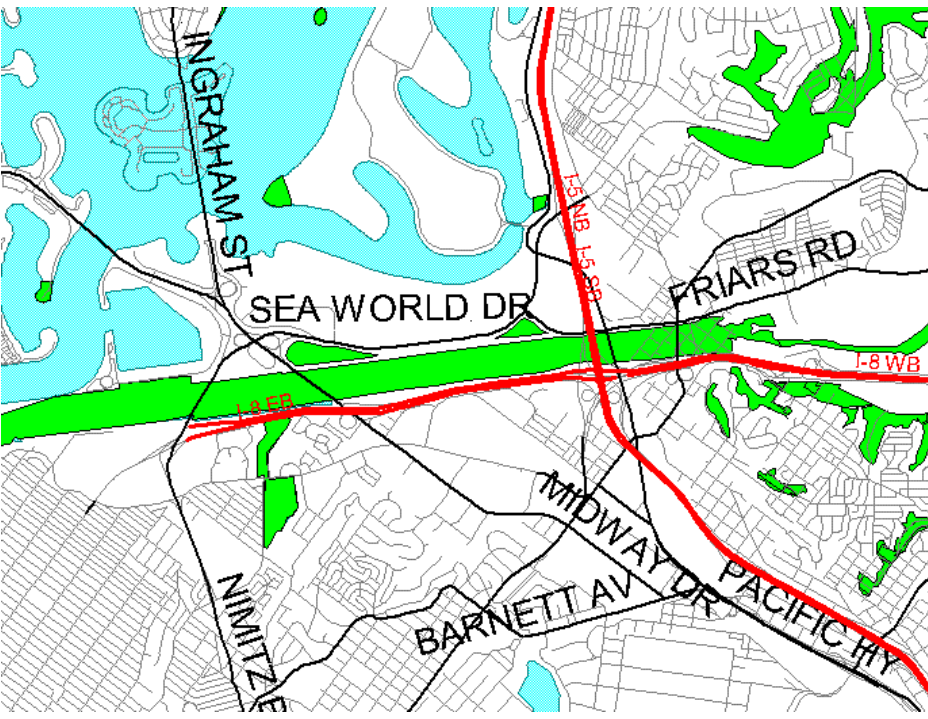
Dredging operations within or adjacent to San Diego Bay and the San Diego River could result in impacts to sensitive wetland (saltwater, brackish and freshwater) habitats and their associated species. There is a potential for impacts to eelgrass beds within San Diego and Mission Bays. These impacts would occur if dredging is necessary in eelgrass habitat. Based on preliminary design assumptions of a 100-foot wide channel, impacts to wetland habitats in the lower San Diego River would include approximately 2.0 acres of coastal salt marsh, 0.5 acre of mudflats and 7.6 acres of sand bars. Dredging in the lower San Diego River in areas that currently consist of open water would affect approximately 12.2 acres. This currently is relatively shallow water that supports aquatic vegetation. This vegetation is habitat for small fish, crustaceans and diving birds. Dredging within this habitat for the project will alter the wildlife values within the affected area to a deeper aquatic environment. These impacts could be difficult to mitigate because of their specialized requirements.

These impact numbers are based on a channel design within the San Diego River that is on the north side of the channel in the western project area. This is where a channel already exists and the sand bars are covered by the daily tides. If the channel were located further to the south the project could impact more terrestrial habitats, including sand dunes.

Biological Resources within the Multiple Species Conservation Program.

Impacts to wetland habitats (and associated species) could require compliance with a number of state and federal laws, including the Clean Water Act (Sections 10, 401 and 404), California Fish and Game Code (Section 1601), federal Migratory Bird Treaty Act (MBTA), and the state and federal Endangered Species Acts (CESA and FESA). Short-term impacts also could occur as a result of construction activities adjacent to sensitive habitats. Compliance with CESA, FESA and the MBTA to avoid impacts could require seasonal timing constraints for wetland habitat clearing, work corridor surveys for nesting birds and/or construction of noise barriers.

With the exception of the California least tern, the sensitive species known to occur in the study area are associated only with the San Diego River. In addition, the historic nesting grounds of the least tern, which forages in both the San Diego River and Bay, are adjacent to the river and at Mission Bay. Thus, both direct and indirect construction impacts to sensitive species would be much greater in association with activities in the river than in the bay.



Biological Resources

There also is a potential for long-term impacts to sensitive biological resources. As noted above, the wetland habitats identified in the study area include saltwater, brackish water and freshwater. These habitats (and their attendant species) have developed in response to specific salinity regimes, and could be affected by changes to them. The salinities of the various portions of water bodies that would be affected by the project are not known at this time; nor (as noted with regard to water quality) are the flow patterns that would occur under this alternative. Although specific impacts, therefore, cannot be determined without a detailed hydrologic analysis, the effect of mixing of waters of varying salinities on the identified wetland habitats and associated species comprises a substantial area of concern for this alternative. Another potential source of habitat type conversion is the draining of water from wetland habitats as a result of dredging activities in adjacent areas. Historic changes in the vegetation in the San Diego River are evidence of habitat conversions that can result from changes in the hydrologic regime.

As described under water quality, above, this alternative could result in substantial water quality impacts, which could in turn affect sensitive species. The anticipated use of the canal by motorized boats would reduce the value of any wetland habitats created as part of its construction. Increased human presence, particularly the noise of motorized watercraft, also could affect sensitive wildlife species in the channel, San Diego Bay and San Diego River.

Another concern is related to the introduction of exotic plant and wildlife species. Specifically, ships docking in San Diego Bay discharge ballast water carried from distant locales, which contains species non-native to San Diego. A water link could allow these species to move from San Diego Bay into the San Diego River and Mission Bay. Any use of invasive plant species in landscaping adjacent to the channel also could result in the transport of non-native species into sensitive habitats.

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Agency/Legislation
Action Required

U.S. Army Corps of Engineers (ACOE) Regulatory Branch
Section 10 and/or 404 permit

U.S. Army Corps of Engineers (ACOE) Operations Branch*
Issues surrounding disruption of flood control in SD River channel and rip-rapped banks

Regional Water Quality Control Board (RWQCB)
Section 401 waiver/certification

U.S. Fish and Wildlife Service (USFWS)
Section 7 consultation

California Department of Fish and Game (CDFG)
1601/3 streambed alteration agreement & 20.81 (California Endangered Species Act) permit

California Coastal Commission (CCC) & City of San Diego
Coastal Development Permit (CDP)

Multiple Species Conservation Program (MSCP)
Site Development Permit (by City of San Diego)

California Environmental Quality Act (CEQA)
Environmental compliance document

National Environmental Policy Act (NEPA)
Environmental compliance document

** It is anticipated that coordination and approval(s) would be necessary from one or more of these agencies, depending on the chosen Alternative. The responsible agency(ies) and required action requires further research to be ascertained.*

Land fill regulatory agencies: City of San Diego, RWQCB and Integrated Waste Management Board*
Landfill disturbance and pollutant issues

City of San Diego Solid Waste Local Enforcement Agency
Submit Work Plans, Project Reports, Boring and Well construction/destruction permits

Closed LUSK Cases
San Diego County Department of Environmental Health (DEH)
Reevaluate the case status

Open LUSK Cases
DEH
Submit Work Plans, Project Reports, Boring and Well construction/destruction permits

City of San Diego Wastewater Department
batch discharge permit for disposal of groundwater into the sewer

County of San Diego Air Pollution Control District
Active Remediation Equipment Permit



Wetland habitat in Mission Bay

Permitting & Environmental Review Requirements



Channel alignment studied through San Diego River
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D. Evaluation

